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The Effectiveness of LSVT-BIG and PWR! Programs on a Patient with Parkinson's Disease: A Case Report

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The Effectiveness of LSVT-BIG and PWR! Programs on a Patient with Parkinson's Disease: A Case Report

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INTRODUCTION

- Lee Silverman Voice Treatment- BIG (LSVT-BIG) and high-intensity training improve gait speed and balance deficits, only limited research exists on the impact of the Parkinson's Wellness Recovery (PWR!) program on Parkinson's Disease symptoms.
- Thus, LSVT-BIG and PWR! should be explored in tandem as a standardized course of treatment for patients with Parkinson's disease.

PURPOSE

To determine the effects of LSVT-BIG and PWR! programs on gait impairments, balance deficits, and participation restrictions in a patient with Parkinson's disease (PD).

CASE DESCRIPTION

Patient Profile

- 74 y/o male; retired woodworker with 7-year hx of PD
- Taking Sinemet (3 times a day)
- H&Y Stage II
- PMH: Rectal adenocarcinoma, HTN, B Hernia Repair

Body Structure/Function Impairments

- B upper extremity tremors and bradykinesia. L>R
- Mild cogwheel rigidity in B UE. L>R
- Gait instability and balance deficits
- Mild thoracic kyphosis and forward head posture
- Decreased lumbar ROM

Activity Limitations

- Safety with car transfers
- Bed Mobility
- Scooting with chair

Participation Restrictions

- Photography
- Gardening
- Rock Steady Boxing

Fig. 1. Mini BEST (Balance Evaluation Systems Test) Incline Assessment

METHODS

Frequency and Duration

- 4x/week for 4 weeks, 1-hour LSVT-BIG, PT/OT sessions
- Followed by 1-2x/week for 4 weeks, 1-hour PWR! sessions

METHODS

Interventions

LSVT-BIG:

- **LSVT-BIG Maximal Daily Exercises**
- **Functional Task:** Sit to Stands, BIG Turns, Backward Gait, Step Overs
- **Hierarchy Task:** Car Transfers
- **Gait:** BIG Walking with Cues for BUE Swing

PWR!

- **Seated and Supine:** Ups, Rocks, Twists, Steps
- **Part-Task Training:** simulated car transfer training, scooting with chair, scooting in bed, bed mobility

Fig. 2. Hurdle Step Over

RESULTS

Functional Limitations and Outcome Measures of the Study

Patient Reported Functional Limitations	Initial Evaluation (10/7/19)	Post-LSVT-BIG (11/4/19)	Post-PWR! (12/12/19)
Bed Mobility	Requires greater time rolling to R and transfer supine <> EOB	Reduced time for supine <> EOB	Able to roll L and R without difficulty
Car Transfers	Moderate limitation, requires assistance or greater time	3/5 transfers without LOB	5/5 transfers without LOB
Outcome Measures	**Initial Evaluation (10/7/19)**	**Post- LSVT-BIG (11/4/19)**	**Post-PWR! (12/12/19)**
Timed Up and Go (TUG)	13.21 s	13 s	11 s
TUG Cognitive	24.11 s with freezing	15 s	11 s
TUG Manual	14.7 s	14 s	10 s
5XSTS	12.9 s	12 s	9 s
Mini-BEST	13/28	---	25/28
3m Backward Walk Test	12.7 s	7 s	5 s
Timed 360° Turn:	R 4.6 s, L: 8.1 s	---	R: 4 s, L: 4.8 s

EOB (edge of bed), STS (sit to stand), BEST (Balance Evaluation Systems Test) , LOB (loss of balance), R (right), L (left).s (seconds)

RESULTS

- Mild improvements in activity limitations with most notable completion of 5/5 car transfers without LOB
- Decreased fall risk evident with 12-point improvement in Mini-BEST following PWR! programs from initial evaluation

DISCUSSION

Improvements across Outcome Measures

- The temporal outcome measures showed improvement above the MDC values.
- The TUG manual task improved 4.7 s and 13.11 s in TUG cognitive task (TUG MDC 3.5 s)
- 5xSTS score decreased by 3.9 s (MDC 3.6 s)
- The Mini-BEST score improved by 12 points (MDC 5.9 points)

Improvements in Functional Mobility

- LSVT-BIG posits sustained muscle activation and repetitive movements as a means of improving functional mobility in patients with PD.
- PWR! addresses the versatility of movement in different planes with attention to activities of daily living.
- Both programs allow patients to work toward functional goals and should be considered jointly as avenues to slow down the progression of Parkinson's disease.

CONCLUSION

A consecutive 24 sessions of LSVT-BIG and PWR! demonstrated clinically meaningful improvements in gait, balance, and functional mobility. This combinatory approach can be used enhance function in patients with PD.

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REFERENCES